

5. Filtration Test of Human-Derived Nucleated Cells

[0115] Five human nucleated cell lines (see Table 9) were used to test the human-derived nucleated cells capture ability of the B-r-H modified substrate. The cells were harvested and resuspended with 5 mL PBS, then took 10 μ L cells for counting. After counting, the cells were diluted into 1×10^6 cells/mL and make the final volume of the samples (1×10^6 cells/mL in PBS) > 3 mL. Then, 20 μ L of samples were taken and counted three times with LUNA-II Automated Cell Counter (Logos Biosystems). Added 1 mL of sample into the syringe barrel and filtrated through the B-r-H modified substrate. Finally, took 20 μ L of the filtrate for cell counting (3 repeats).

[0116] The results show that the modified substrate has a nucleated cell capture rate of at least 99%. This means that when biological samples flow through the modified substrate, most of the human-derived nucleated cells adhere to the substrate. The results are shown in Table 10. The human nucleated cells in the samples are specifically removed after filtered through B-r-H modified substrate.

TABLE 9

Cell line	Cell type	Growth Properties
TF1	bone marrow erythroblast	suspension
Jurkat	peripheral blood, T lymphocyte	suspension
PC-3	prostate, adenocarcinoma	adherent
SK-BR-3	mammary gland/breast, adenocarcinoma	adherent
K-562	bone marrow, lymphoblast	suspension

TABLE 10

Cell line	Before filtration (cells/mL)			After filtration (cells/mL)		
	1	2	3	1	2	3
TF1	9.88×10^5	9.88×10^5	9.88×10^5	2.50×10^3	0	0
Jurkat	1.05×10^6	1.05×10^6	1.05×10^6	0	2.50×10^3	0
PC-3	8.12×10^5	8.32×10^5	9.50×10^5	0	4.00×10^3	0
SK-BR-3	8.24×10^5	8.24×10^5	8.16×10^5	0	0	0
K-562	1.28×10^6	1.37×10^6	1.16×10^6	0	0	0

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